CITY OF CARSON

February 13, 2015

Sam Unger
Executive Officer
LARWQCB
320 W. 4th St. Suite 200
Los Angeles, CA 90013

Subject: Los Angeles County MS4 Permit – Revised City of Carson Integrated Monitoring Program

Dear Mr. Unger:

The **City of Carson** (City) is pleased to submit for your review and approval its Integrated Monitoring Program (IMP). The IMP contains the revisions specified in the Regional Board's IMP review letter to the City dated January 16, 2015. Once the revisions have been approved by Regional Board staff, the City shall incorporate them into a final IMP.

The IMP review letter specifies two substantive elements missing in the City's monitoring program submittal: (1) receiving water monitoring; and (2) non-stormwater outfall based monitoring. These and other requests for IMP changes and corrections are contained in *Enclosure 1, Summary of Comments and Required Revisions* and are highlighted in red type.

I. Receiving Water Monitoring

As our Coordinated Integrated Monitoring Program indicated, the City chose not to conduct receiving water monitoring because it is a requirement that was and still is under administrative challenge. The City challenged this requirement because it could not see any benefit in it. The City, as mentioned in its Individual Watershed Management Program, has opted for compliance at the outfall. That being the case there should be no need to also perform receiving water monitoring. Further, because discharges during storm events are commingled with other MS4s and other sources, permitted and non-permitted, receiving water monitoring cannot serve as a compliance determinant. And as noted in the City's administrative petition and comments to the State Board, TMDLs and other water quality standards are ambient rather than wet weather standards. In deed, State Board Water Quality Order 2001-15 makes it clear that nothing in state or federal law requires compliance with wet weather water quality standards.

Nevertheless, until this issue resolved, the City will endeavor to comply. The problem, however, is access to receiving waters, the Dominguez Channel and a small portion of Compton Creek in the City's case, to enable grab samples. As you know, the Dominguez Channel is a flood control channel managed by the Los Angeles County Flood Control District. It does not allow trespassing on its channels and definitely prohibits taking samples during storm events. This City can take wet weather samples from Machado Lake, but again its purpose seems unnecessary and other Permittees including the City of Los Angeles, which owns the lake, plans on conducting such monitoring.

As an alternative, the City requests that the Regional Board allow the use of monitoring data taken from the County's mass emission station located in **Torrance** for the Dominguez Channel and a CMP station located at the Sepulveda Boulevard overpass and Compton Creek. The data would be used as a general indicator of the health of the Dominguez Channel during storm events.

II. Non-stormwater Outfall Monitoring

The City also opposed non-stormwater outfall monitoring which it viewed as unnecessary. The ostensible purpose of non-stormwater outfall monitoring is to determine compliance with TMDLs. However, the illicit connection and discharge detection and elimination program addresses impermissible non-stormwater discharges to the MS4. The purpose of the program is to detect illicit discharges and connections by: (1) prohibiting such discharges; and (2) if prohibition is not feasible, to require the discharger to obtain a discharge permit. By eliminating the discharge, the mechanism for transporting TMDLs and other pollutants collected in the MS4, pollutants are prevented from entering the receiving water. Further, federal regulations do not require non-stormwater outfall monitoring for TMDLs or other constituents. Federal regulations only require field screening for illicit discharges for source identification purposes. In any case, the City will conduct non-stormwater discharge outfall monitoring for TMDL constituents relative to the Dominguez Channel on a monthly basis.

III. Necessary Revisions

See table I for revisions to the City's IMP specified in *Enclosure 1 – Summary of Necessary Revisions to Draft IMP.*

In closing, should you have any questions, please feel free to call me.

Sincerely,

Gilbert Marquez P.E.
City Engineer

Section One Monitoring and Reporting Program (MRP)

1.0 Summary

The Los Angeles County MS4 Permit (Order R4-2012-0175) includes compliance with a **Monitoring and Report Program** (MRP) [No. CI 6948]. The MRP addresses the several types of monitoring tasks required by the Permit. The City intends to meets these requirements through its **Integrated Monitoring Program** (IMP) submittal.

In addition to the above monitoring tasks, the City is also subject to monitoring tasks required by the Individual Watershed Management Program (I-WMP), which is not referenced in the MRP section. Essentially, these provisions require monitoring of stormwater discharges against water quality standards that are not TMDLs either contained in the basin plan or based on federal regulations. The purpose of the monitoring is to facilitate an evaluation of the adequacy of control measures in meeting the specified limitations. The problem, however, is that the Permit, under the WMP section, does not specify which pollutants and water quality standards must be monitored for or met. Discussions with Regional Board staff revealed that the water quality standards are mandated by federal regulations. They can be taken from the previous Permit under the previous MS4 Permit's MRP under Attachment U.

All pollutants subject to monitoring will be loaded into the RAA/Water Quality Model to evaluate to what extent the City is persistently exceeding TMDLs and other water quality standards and identify BMPs that are necessary to preventing such exceedances.

As is explained in the CIMP, there are several provisions of the Permit reflected in the MRP and CIMP that the City cannot comply with because the City has challenged them in its administrative petition. These

include, most notably, non-storm water action levels. The City expects these issues to be resolved though a State Board Order in response to an administrative petition it filed challenging this and other MS4 Permit requirements.

1.1 Integrated Monitoring Program

The City has opted for a IMP to comply with monitoring and SWMP/WMP requirements under the MS4 Permit. In accordance with the MRP, the IMP includes the following elements: (1) receiving water monitoring; (2) storm water outfall based monitoring; (3) non-storm water outfall based monitoring; and new development/re-development effectiveness tracking; (4) compliance with municipal action level (MAL) parameters; and (5) regional studies.

It is important to note that the City has complained in its administrative petition about the Permit's excessive monitoring requirements which it argues are arbitrary and capricious and exceed federal stormwater regulations. These include any monitoring activity that is located outside an MS4 (toxicity, wet weather TMDL WLAs, regional studies, toxic investigation evaluation (TIE), etc.); and dry weather monitoring (dry weather minimum levels, non-stormwater outfall monitoring, and non-stormwater action levels). In the alternative, the City will comply with federal field screening requirements for non-stormwater discharges, the purpose of which are to detect and eliminate illicit discharges and illicit connections.

1.2 IMP Requirements

Through the Integrated Monitoring Program (IMP) the City proposes to consolidate applicable monitoring program requirements as specified in

attachment E of the MS4, which *provides flexibility to allow Permittees to coordinate monitoring efforts on a watershed or sub-watershed basis to leverage monitoring resources in an effort to increase cost-efficiency and effectiveness and to closely* align monitoring with TMDL monitoring requirements *and Watershed Management Programs*. To that end, the City intends to share costs with cities listed below in Table I.

Table I – Cost Sharing Participation

Watershed/Sub-watershed	Participating MS4s
• Los Angeles River, Reach 1 and Compton Creek	• Compton • Carson and Compton
• Dominguez Channel	• Carson • Compton • Gardena • Lawndale
• Machado Lake	• Carson • Lomita

Though the SWAMP should be responsible for performing ambient monitoring, it is not known when, if ever, it intends to conduct ambient monitoring in these reaches. In the meantime, the City recognizes that the ambient monitoring approach will yield accurate data needed to evaluate the beneficial uses and facilitate compliance with ambient TMDL WLAs and other water quality standards.

The City does not plan to use a collaborative approach to pay for monitoring in the receiving water to determine compliance with wet weather TMDLs. This is because it opposes having to comply with wet weather standards in the receiving water. TMDLs are ambient, dry weather standards, not wet weather standards, the latter of which are not required to determine compliance under federal and state law.

GIS maps have been developed to depict the geographic boundaries of the monitoring plan including the receiving waters, the MS4 catchment drainages and outfalls, sub-watershed boundaries, political boundaries, land use, and the proposed receiving water monitoring stations for both dry weather and wet weather receiving water monitoring (see **Appendix A, Maps**).

Table II – City of Carson Land Use Breakdown

Land Use Category	Area (Acres)	Percentage
Commercial/Institutional	446.4	3.7%
Industrial	5047.3	42.1%
Residential	3098.6	25.9%
Public Facility	1000.4	8.3%
Open Space	540.3	4.5%
Street	1850.36	15.5%
Total	**11983.36**	**100%**

1. 3 Receiving Water Monitoring

The MS4 Permit requires receiving water monitoring to be performed at in-stream mass emissions stations; additional receiving water compliance points approved by the Regional Board's Executive Officer; and additional locations that are representative of impacts from MS4 discharges. The objectives of receiving water monitoring are: (1) determine if receiving water limitations are being achieved; (2) assess trends in pollutant concentrations over time; and (3) determine whether the designated beneficial uses are fully supported based on water chemistry, as aquatic toxicity and bio-assessment monitoring.

The City of Carson is located in the Dominguez channel and Los Angeles Harbor watersheds. Most of the city drains into Dominguez channel estuary (below Vermont Avenue). A small portion of the city drains into Dominguez Channel (above Vermont Avenue) and a relatively small portion also drains into Compton Creek, which is tributary to Los Angeles

River Watershed. Also, 15% of city's drainage area drains into Machado Lake.

Permittees have been directed to utilize previously designated mass emission stations for receiving water sampling. However, the closest station is located above the City of Carson at Artesia Boulevard in the and Dominguez Channel in City of Torrance. Therefore City will have his own receiving water sampling locations -- if feasible -- for Dominguez Channel and Compton Creek. The City will use grab sampling for receiving because the City cannot legally access them (viz., Los Angeles County's flood control channels). For Machado Lake the City will take samples from Machado Lake. The table below summarizes each of monitoring location. GIS map of receiving water location is provided in Attachment A.

Table III– Receiving Water Monitoring Program Location

Water Body	Waterbody Location	Coordinates	
		Latitude	Longitude
Dominguez Channel	E. Sepulveda Blvd.	33.806022	-118.22772
Machado Lake	Machadolake middle	33.78563	-118.294339
Compton Creek	Del Amo Blvd	33.847301	-118.2096

1.4 Storm Water Outfall-Based Monitoring

The City is committed to stormwater monitoring at the outfall in accordance with federal stormwater regulations. Outfall monitoring will be limited to: (1) aiding in determining compliance with WQBELs (TMDL WLAs and other water quality standards measured against ambient standards); and (2) evaluating stormwater discharges against Municipal Action Levels (MALs). Outfall monitoring, however, will not serve to determine compliance with wet weather TMDL WLAs in the receiving water. Once again, there is no support for the legitimate existence of a wet

weather TMDL or any water quality standard; and the purpose of the MALs is unclear and appears to be superfluous. However, the City would be willing to comply with MAL monitoring if offered as alternative to conventional monitoring for compliance purposes.

The City has identified one outfall from which discharges are released to Dominguez Channel. However, the City cannot sample from outfalls because: (1) they are located on property owned and operated by County of Los Angeles Flood Control District (LACFCD); and (2) it would be physically impossible to draw a grab sample from them.

Federal regulations allow monitoring to be conducted at representative field screening points which, along with outfalls, are illustrated on **Appendix A-1**.

Outfall Discharging into Receiving Water

Six field screening points been chosen, each of which is located upstream of an outfall. The screening points are representative of stormwater discharges from the entire City. They include one for Machado Lake, one for Compton Creek, and three for Dominguez Channel. The City shall collect samples for Compton Creek and Machado Lake 3 times during the wet season (October 1 through May 15). The screening points for these sub-watersheds are representative of a mix of residential and commercial

areas. The City shall also collect samples from the three field screening points for Dominguez Channel. The City intends to sample three times a year from one of the three field screening points on a rotating basis. Since each of these field screening locations are in residential, commercial, and industrial areas, the samples are expected to yield representative results. At the end of the 5 year term of the Permit the City will be able characterize each of the sub-watersheds for pollution issues. If persistent exceedances of TMDLs and other water quality standards are recorded, the City will propose adjustments to BMPs and other actions in its Report of Waste Discharge (ROWD) -- the MS4 Permit reapplication that is due to the Regional Board 180 days prior to the expiration of the current Permit (May of 2017).

In addition to using the data to determine compliance with WQBELs, the City will also measure stormwater discharges against municipal action levels (MALs).

Table below summarize the MS4 outfall location and infield screening points locations. City will be taking samples only from field screening points, not from the outfall.

Table IV – Summary of Outfall and Field Screening Points

ID No.	Outfall Coordinates	Outfall Location	Ownership	Size (in)	Outfall material	Picture
1	33.831619, -118.253833	E.Del Amo Blvd. & Dominguez channel	LACFCD	240	Reinforced Cement Concrete (RCC)	
2	33.837677, -118.260680	Carson St & Dominguez channel	LACFCD	125	Reinforced Concrete Box (RCB)	
3	33.8316019, -118.269463	Wilmington Ave. & Dominguez Channel	LACFCD	138	Reinforced Concrete Box (RCB)	
ID	Field	Field	Ownership	Size	Field	Picture

No.	Screening Coordinates	Screening Location		(in)	Screening material	
1	33.8702568, -118.253890	East Carson Street (DC Channel)	LACFCD	36	Manhole – Concrete Box Storm Drain	
2	33.835406, -118.256128	E Del Amo Blvd. (DC Channel)	LACFCD	36	Manhole – Concrete Box Storm Drain	
3	33.831749, -118.257564	E 223rd street (DC Channel)	LACFCD	36	Manhole – Concrete Box Storm Drain	
4	33.800446, -118.275579	S Main Street (Machado Lake)	LACFCD	36	Manhole – Concrete Box Storm Drain	
5	33.843257, -118.211767	S Susana St. (Compton Creek)	LACFCD	18	Manhole – Concrete Box Storm Drain	

Table V – Land use drainage area breakdown for each monitoring location

Land Use Type	Drainage Area (Acres & Percentage)				
	M1	M2	M3	M4	M5
Residential	651.6	1108.5	767.7	540.8	28.2
Commercial	117.3	169.1	85.2	30.1	40.2
Industrial	1219.8	1461.8	1000.4	1365.3	0
Open Space	85.2	97.3	128.6	100.4	0
Parks	200.2	487.1	158.3	67.5	0
Street	429.1	480.1	540.7	389.6	12
Total	**2703.2 (22.6%)**	**3323.8 (27.7%)**	**2680.9 (22.4%)**	**2493.7 (20.8%)**	**87 (0.67 %)**

1.5 Non-Storm Water Outfall-Based Monitoring

The City will not perform non-stormwater outfall monitoring to determine compliance with TMDLs, other water quality standards, and

action levels. Such requirements exceed federal stormwater regulations. As already explained, MS4 Permittees are required to control pollutants in stormwater discharges from the outfall through BMPs and other actions. For non-stormwater discharges no such requirement is mandated. MS4 Permittees are required only to prohibit impermissible (i.e., non-exempt) non-stormwater discharges into the MS4. If a Permittee does not succeed in persuading the discharger to prohibit a non-stormwater discharge, it must require the discharger to obtain a separate discharge Permit. This is an argument that was raised in the City's administrative petition and is supported by federal statute and State Board water quality orders.

However, the City will perform outfall visual and sampling monitoring in connection with illicit connection and discharge elimination requirements in keeping with federal stormwater regulations and USEPA guidance. Non-stormwater discharge monitoring will conform to 122.26(d)(1)(D) for the purpose of screening for illicit connections and dumping, which specifies visual monitoring at outfalls for dry weather (non-stormwater discharges). Visual monitoring shall be performed twice a year during dry periods. If flow is observed samples for the outfall (or field screening points):

> *...samples shall be collected during a 24 hour period with a minimum period of four hours between samples. For all such samples, a narrative description of the color, odor, turbidity, the presence of an oil sheen or surface scum as well as any other relevant observations regarding the potential presence of non-storm water discharges or illegal dumping shall be provided.*

In addition, regulations require a narrative description of the results from sampling for fecal coliform, fecal streptococcus, surfactants (MBAS), residual chlorine, fluorides and potassium; pH, total chlorine, total copper, total phenol, and detergents (or surfactants) shall be provided along with a description of the flow rate. These analytes will be used as potential

indicators of illicit discharges, which would trigger an up-stream investigation to identify the source of the suspected illicit discharge or connection. If the source of the illicit discharge/connection and discharger is identified, the City shall notify the discharge that it will need to halt the discharge and, if not feasible, will require the discharger to obtain a discharge Permit.

As per the LA county MS4 permit, non-stormwater outfall based monitoring must be included in the IMP as outlined in Part IX of Attachment E. The City's non-stormwater outfall based screening and monitoring process is outlined below:

- **Field Screening**: Outfalls greater than or equal to 36 inches in diameter will be located and mapped using GIS. Outfalls will be monitored two additional times, after 72 hours of rain event. An observation will be conducted during working hours. During observations staff will complete an **Outfall Screening Form** containing information such as date, time, weather, flow amount, visual turbidity, trash, and odor. Photographs also are taken during inspection.
- **Inventory of Screening Points**: An inventory will be developed of major MS4 outfall with known significant non-stormwater discharges and those requiring no further assessment.
- **No further Assessment**: No further Assessment will be reported in the inventory database if no flow is observed on at least 4 out of 5 visits.
- **Prioritization Criteria & Source Investigation**: Based on data collected during the screening process, the City will identify screening points with significant non-stormwater discharges and those requiring no further action. The data collected as part of the outfall screening process will be used to prioritize outfalls for source investigation. The City will

complete 25% of source identification inventory by December 28th, 2015 and 100% by December 28, 2017.

- **Implement Source Identification**: If necessary, the City will implement source identification in prioritized order, consistent with the City's IC/ID Program. The City's contribution will be quantified if the discharge is comprised of multiple sources. Upstream jurisdictions and the Regional Board will be notified if the source originates outside The City's jurisdiction.
- **Monitor Non-storm Water Discharge Exceedance Criteria**: The City will monitor outfall screening points conveying significant discharges comprised of unknown or conditionally exempt non-stormwater discharges, or continuing illicit discharges. In addition, an outfall subject to an approved dry weather TMDL will be monitored per the TMDL Monitoring Plan. Monitoring frequency will be reduced to twice per year beginning the second year of monitoring if pollutant concentration during the first year do not exceed WQBELs or water quality standards on the 303(d) list for the receiving water. Outfall(s) will be monitored for the flow, constituents identified in Attachment N of MS4 permit, and other pollutants identified in 303(d) list. Pollutants identified in a TIE conducted in response to observed aquatic toxicity during dry weather at the nearest downstream receiving water monitoring station. If the discharge exhibits acute toxicity, then a TIE shall be conducted.

1.6 Municipal Action Levels

The purpose of municipal action levels (MALs) is not clear and appears to be superfluous given the Permit's other monitoring requirements. All of the MAL constituents are already addressed by

TMDLs and federally mandated monitoring for certain constituents[1]. The MS4 Permit's fact sheet mentions that the purpose of MAL monitoring is to evaluate the effectiveness of a Permittee's stormwater management program in reducing pollutant loads from drainage areas as a means of determining compliance with the maximum extent practical (MEP) standard. There is no guidance in the Permit to explain how this is task is to be accomplished. MAL monitoring is also intended to evaluate the effectiveness of post-construction BMPs. It is not clear, however, how MALs can evaluate post-construction BMPs. One basic question is where would MAL monitoring be performed, at the development or new development site, for which post-construction BMPs have been prescribed, or down stream from it? The City has challenged the MAL monitoring requirement in its administrative petition, based on these and other concerns. MAL monitoring represents an unnecessary cost that accomplishes nothing beneficial. Nevertheless, because MAL constituents are included in other stormwater monitoring requirements, the City will effectively be meeting this task. The Permit's monitoring program also requires non-stormwater MAL compliance. As mentioned, the City has challenged all non-stormwater monitoring tasks that are intended to determine compliance with TMDLs and other water quality standards.

1.7 New Development/Redevelopment Tracking

The PLDP requires tracking new development and redevelopment projects within 60 days of the Permit's adoption (unless a Permittee chooses to participate in Watershed Management Program). Although not

[1]Total nitrogen, total phosphorous, Ammonia N, TKN, Total PCBs, Chlordane, Dieldrin, 4,4 – DDD, 4,4 – DDE, 4,4 – DDT, Cadmium, Chromium, copper, lead, zinc, E-Coli, fecal coliform.

a monitoring requirement per se, Permittees are nevertheless required to maintain a database containing the following information:

- name of the project and developer
- project location and map (preferably linked to the GIS storm drain map)
- date of Certificate of Occupancy
- 85th percentile storm event for the project design (inches per 24 hours)
- 95th percentile storm event for projects draining to natural water bodies (inches per 24 hours), related to hydromodification
- other design criteria required to meet hydromodification requirements for drainages to natural water bodies,
- project design storm (inches per 24-hours)
- project design storm volume (gallons or MGD)
- percent of design storm volume to be retained on site
- design volume for water quality mitigation treatment BMPs, if any
- If flow through, water quality treatment BMPs are approved, provide the one year, one-hour storm intensity as depicted on the most recently issued isohyetal map published by the Los Angeles County Hydrologist
- percent of design storm volume to be infiltrated at an off-site mitigation or groundwater replenishment project site
- percent of design storm volume to be retained or treated with bio-filtration at an off-site retrofit project
- location and maps (preferably linked to the GIS storm drain map required in Part VII.A of this MRP) of off-site mitigation, groundwater

replenishment, or retrofit sites documentation of issuance of requirements to the developer

The City intends to meet the foregoing tracking tasks through a revised SUSMP evaluation form (see **Section Two, SUSMP Appendix B-4**).

1.8 Regional/Special Studies

The Southern California Stormwater Monitoring Coalition (SMC) Regional Watershed Monitoring Program was initiated in 2008. This program is conducted in collaboration with the Southern California Coastal Water Research Project (SCCWRP), State Water Board's Surface Water Ambient Monitoring Program, three Southern California Regional Water Quality Control Boards (Los Angeles, Santa Ana, and San Diego) and several county storm water agencies (Los Angeles, Ventura, Orange, Riverside, San Bernardino and San Diego). SCCWRP acts as the facilitator to organize the program and completes data analysis and report preparation. The SMC monitoring program seeks to coordinate and leverage existing monitoring efforts to produce regional estimates of condition, improve data comparability and quality assurance, and maximize data availability, while conserving monitoring expenditures. The primary goal of this program is to implement an ongoing, large - scale regional monitoring program for southern California's coastal streams and rivers. The monitoring program addresses three main questions:

- What is the condition of streams in southern California?
- What are the stressors that affect stream condition?; and
- Are conditions getting better or worse?

In order to continue the implementation efforts of the SMC monitoring program, the City will support or provide monitoring data as described at the SMC sites within the watershed management area(s) that overlap with the City's jurisdictional area.

1.9 Toxicity Monitoring

The MRP of the MS4 permit requires toxicity testing at the outfall and in the receiving water. The City will collect and analyze grab samples taken from receiving water monitoring locations to evaluate the extent and cause of toxicity in the receiving water. If toxicity is present in the receiving water the City will perform toxicity testing on water samples taken from field screening points to make sure that the toxicity is coming from City's jurisdictional area. A sufficient number of samples specified in the MRP shall be collected to perform both the required toxicity test and TIE studies.

1.9.1 Sensitive Spices Selection

The MRP states that a sensitivity screening is required to select the most sensitive test species unless "a sensitive test species has already been determined, or if there is prior knowledge of potential toxicant(s) and a test species is sensitive to such toxicant(s), then monitoring shall be conducted using only that test species." Previous relevant studies conducted in the watershed should be considered. Such studies may have been completed via previous MS4 sampling, wastewater NPDES sampling, or special studies conducted within the watershed. The following sub-sections discuss the species section process for assessing aquatic toxicity in receiving waters.

1.9.2 Freshwater Sensitive Spices Selection

As described in the MRP, if samples are collected in receiving waters with salinity less than 1 part per thousand (ppt), or from outfalls discharging to receiving waters with salinity less than 1 ppt, toxicity tests should be conducted on the most sensitive test species in accordance with species and short-term test methods in *Short-term Methods for Estimating the Chronic*

Toxicity of Effluents and Receiving Waters to Freshwater Organisms. The freshwater test species identified in the MRP are:

- A static renewal toxicity test with the fathead minnow, Pimephales promelas (Larval Survival and Growth Test Method 1000.04).
- A static renewal toxicity test with the daphnid, Ceriodaphnia dubia (Survival and Reproduction Test Method 1002.05).
- A static non-renewal toxicity test with the green alga, Selenastrum capricornutum (also named Raphidocelis subcapitata) (Growth Test Method 1003.0).

The three test species were evaluated to determine if either a sensitive test species had already been determined, or if there is prior knowledge of potential toxicant(s) and a test species is sensitive to such toxicant(s). In reviewing the available data in the Dominguez Channel watershed, metals, historical organics, and pyrethroids have been identified as problematic and are generally considered the primary aquatic life toxicants of concern found in urban runoff. Given the knowledge of the presence of these potential toxicants in the watershed, the sensitivities of each of the three species were considered to evaluate which is the most sensitive to the potential toxicants in the watersheds.

As C. dubia is identified as the most sensitive to known potential toxicant(s) typically found in receiving waters and urban runoff in the freshwater potions of the watershed, C. dubia is selected as the most sensitive species. The species also has the advantage of being easily maintained by means of in-house mass cultures. The simplicity of the test, the ease of interpreting results, and the smaller volume necessary to run the test, make the test a valuable screening tool. The ease of sample collection and higher sensitivity will support assessing the presence of ambient receiving water toxicity or long term effects of toxic storm water over time.

As such, toxicity testing in the freshwater portions of the watershed will be conducted using C. dubia. However, C. dubia test organisms are typically cultured in moderately hard waters and can have increased sensitivity to elevated water hardness greater than 400 mg/L CaCO3, which is beyond their typical habitat range. Because of this, in instances where hardness in site waters exceeds 400 mg/L (CaCO3), an alternative test species may be used. Daphnia magna is more tolerant to high hardness levels and is a suitable substitution for C. dubia in these instances.

1.9.3 **Toxicity Identification Evaluation (TIE)**

A toxicity test sample is immediately subject to TIE procedures to identify the toxic chemical(s), if either the survival or sub-lethal endpoint demonstrates a Percent Effect value equal to or greater than 50% at the IWC. Percent Effect is defined as the effect value denoted as the difference between the mean control response and the mean IWC response, divided by the mean control response - multiplied by 100. A TIE shall be performed to identify the causes of toxicity using the same species and test method and, as guidance, U.S. EPA manuals: Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I (EPA/600/6 - 91/005F, 1992); Methods for Aquatic Toxicity Identification *Evaluations, Phase II* Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R - 92/081, 1993); and Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document (EPA/600/R - 96 - 054, 1996).

The TIE should be conducted on the test species demonstrating the most sensitive toxicity response at a sampling station. A TIE may be conducted on a different test species demonstrating a toxicity response with the caveat that once the toxicant(s) are identified, the most sensitive test species triggering the TIE shall be further tested to verify that the toxicant has

been identified and addressed. A TIE Prioritization Metric (see Appendix 5 in SMC Model Monitoring Program) may be utilized to rank sites for TIEs.

1.9.3 Toxicity Identification Evaluation (TIE)

When a toxicant or class of toxicants is identified through a TIE conducted at a receiving water monitoring station, Permittees shall analyze for the toxicant(s)during the next scheduled sampling event in the discharge from the outfall(s) upstream of the receiving water location. If the toxicant is present in the discharge from the outfall at levels above the applicable receiving water limitation, a TRE shall be performed for that toxicant. The TRE shall include all reasonable steps to identify the source(s) of toxicity and discuss appropriate BMPs are identified, the Permittee(s) shall submit a TRE Corrective Action Plan to the Regional Water Board Executive Officer for approval. At minimum, the plan shall include a discussion of the following:

- The potential sources of pollutant(s) causing toxicity.
- A list of municipalities and agencies that may have jurisdiction over sources of pollutant(s) causing toxicity.
- Recommended BMPs to reduce the pollutants(s) causing toxicity.
- Proposed post - construction control measures to reduce the pollutant(s) causing toxicity.
- Follow - up monitoring to demonstrate that the toxicants have been reduced or eliminated.

1.10 Chemical TMDL Monitoring and Compliance Schedule

Chemical TMDL sampling will be performed at receiving water and field screening points from stormwater discharges at least three times a year. Tables below summarize list of constituents for NPDES and TMDL storm water outfall monitoring. In addition tables below also specifies

interim and final TMDL WLAs and compliance deadline dates to which the City is subject.

Table VI – List of Constituents

Upper Dominguez Channel (Upper HUC 12)	Lower Dominguez Channel (Lower HUC 12)	Machado lake/LA-LB Harbors HUC 12	Compton Creek / LAR HUC 12
Flow, hardness, pH, dissolved oxygen, temperature, specific conductivity, TSS & SSC	Flow, hardness, pH, dissolved oxygen, temperature, specific conductivity, TSS & SSC	Flow, hardness, pH, dissolved oxygen, temperature, specific conductivity, TSS & SSC	Flow, hardness, pH, dissolved oxygen, temperature, specific conductivity, TSS & SSC
Table E-2 Pollutants	Table E-2 Pollutants	Table E-2 Pollutants	Table E-2 Pollutants
Cooper, Lead, Zinc	Cooper, Lead, Zinc	-	Cooper, Lead, Zinc
Chlordane, DDT, PCBs, & PAHs	Chlordane, DDT, PCBs, & PAHs	Chlordane, DDT, PCBs, & PAHs	-
-	-	Ammonia as N, Nitrate-N, Nitrite-N, TKN, Total Phosphorus	Ammonia as N, Nitrate-N, Nitrite-N, Nitrite-N + nitrate-N
Suspended Sediment: Copper, Lead, Silver, Zinc, Chlordane, DDT, PCBs & PAHs	Suspended Sediment: Copper, Lead, Silver, Zinc, Chlordane, DDT, PCBs & PAHs	Suspended Sediment: Copper, Lead, Silver, Zinc, Chlordane, DDT, PCBs & PAHs	-
-	-	-	E-coli
-	-	Trash	Trash

Table VII – Dominguez Channel Freshwater Toxics TMDL (Wet Weather)

Toxics TMDL	Interim WLA	Deadline	Final WLA	Deadline
• Total Copper	207.51 µg/L	March, 2012	1300.3 g/day	March 2032
• Total Lead	122.88 µg/L	March, 2012	5733.7 g/day	March 2032
• Total Zinc	898.87 µg/L	March, 2012	9355.5 g/day	March 2032
• Toxicity	2 TUc	March, 2012	1 TUc	March 2032

Table VIII – Dominguez Channel Estuary Toxics TMDL (Wet Weather)

Toxics TMDL	Interim WLA	Deadline	Final WLA	Deadline
• Total Copper	220 mg/kg	March, 2012	22.4 kg/yr	March 2032
• Total Lead	510 mg/kg	March, 2012	54.2 kg/yr	March 2032
• Total Zinc	789 mg/kg	March, 2012	271.8 kg/yr	March 2032
• Total DDT	1.727 mg/kg	March, 2012	0.25 g/yr	March 2032
• PAHs	31.6 mg/kg	March, 2012	0.134 kg/yr	March 2032
• Total PCBs	4.490 mg/kg	March, 2012	0.207 g/yr	March 2032

Table IX – Machado Lake Nutrients TMDL (Wet & Dry Weather)

Nutrients TMDL	Interim WLA	Deadline	Final Interim	Deadline
• Total Phosphorous	1.25 mg/l	March, 2014	0.1 mg/l	September, 2018
• Total Nitrogen	2.45 mg/l	March, 2014	1.0 mg/l	September, 2018

Table X – Machado Lake Toxics TMDL (Wet & Dry Weather)

Toxics TMDL	Interim WLA	Deadline	Final Interim	Deadline
• Total PCBs	59.9 ug/kg	September, 2019	59.9 ug/kg	September, 2019
• Total DDT	5.2 ug/kg	September, 2019	5.2 ug/kg	September, 2019
• Dieldrin	1.9 ug/kg	September, 2019	1.9 ug/kg	September, 2019
• Chlordane	3.24 µg/kg	September, 2019	3.24 ug/kg	September, 2019

Table XI – Machado Lake Trash TMDL

Task	Impacted Permittees	Compliance Date
Installation of Full Capture Systems to achieve 20% reduction of trash from Baseline WLA*.	California DOT (Caltrans) and Municipal Separate Storm Sewer System (MS4) Permittees including: Los Angeles County, Los Angeles Flood Control District, and the cities of Carson, Lomita, Los Angeles, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estate, and Torrance	March 6, 2012
Installation of Full Capture Systems to achieve 40% reduction of trash from Baseline WLA*.	Same as above.	March 6, 2013
Evaluate the effectiveness of Full Capture Systems, and reconsider the WLA.	Regional Board	March 6, 2013
Installation of Full Capture Systems to achieve 60% reduction of trash from Baseline WLA*.	California Department of Transportation (Caltrans) and Municipal Separate Storm Sewer System (MS4) Permittees including: Los Angeles County, Los Angeles Flood Control District, and the cities of Carson, Lomita, Los Angeles, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estate, and Torrance	March 6, 2014
Installation of Full Capture Systems to achieve 80% reduction of trash from Baseline WLA*.	Same as above.	March 6, 2015
Installation of Full Capture	Same as above.	March 6, 2016

Systems to achieve 100% reduction of trash from Baseline WLA*.		

*Compliance with percent reductions from the Baseline WLA will be assumed wherever full capture systems are installed in corresponding percentages of the conveyance discharging to the water body. Installation will be prioritized based on the greatest point source loadings.

Table XII – Dry and Wet Weather TMDL WLAs for Compton Creek

Water Body	Copper	Lead	Zinc	Trash
Compton Creek	17 ug/l	62 ug/l	159 ug/l	See Table X Below
Water Body	**Bacteria**	**Daily Maximum**	**Geometric Mean**	
Compton Creek	E-coli	235/100mL	126/100 mL	
Water Body	**Ammonia-N**	**NO3-N + NO2-N**	**NO2-N**	**NO3-N**
Compton Creek	2.3 mg/l	8 mg/L	1 mg/L	8 mg/L
Dry Weather WLAs				
Water Body	**Copper**	**Lead**	**Zinc**	**Trash**
Compton Creek	19 ug/l	8.9 ug/l	-	Same As Wet Weather
Water Body	**Bacteria (Interim)**	**Bacteria (Final)**	**-**	**-**
Compton Creek	7 MPN/day	126 MPN/100 ml	-	-

Table XIII – Compton Creek Trash TMDL

Year	Implementation Year	Waste Load Allocation	Compliance Point
9-08	Year 1	60% of Baseline Waste Load Allocations for the Municipal Permittees and Caltrans	60% of the baseline load
9-09	Year 2	50% of Baseline Waste Load Allocations for the Municipal Permittees and Caltrans	55% of the baseline load calculated as a 2-year annual average
9-10	Year 3	40% of Baseline Waste Load Allocations for the Municipal Permittees; and Caltrans	50% of the baseline load calculated as a rolling 3-year annual average

9-11	Year 4	30% of Baseline Waste Load Allocations for the Municipal Permittees; and Caltrans	40% of the baseline load calculated as a rolling 3-year annual average
9-12	Year 5	20% of Baseline Waste Load Allocations for the Municipal Permittees; and Caltrans	30% of the baseline load calculated as a rolling 3-year annual average
9-13	Year 6	10% of Baseline Waste Load Allocations for the Municipal Permittees; and Caltrans	20% of the baseline load calculated as a rolling 3-year annual average
9-14	Year 7	0% of Baseline Waste Load Allocations for the Municipal Permittees; and Caltrans	10% of the baseline load calculated as a rolling 3-year annual average
9-15	Year 8	0% of Baseline Waste Load Allocations for the Municipal Permittees; and Caltrans	3.3% of the baseline load calculated as a rolling 3-year annual average
9-16	Year 9	0% of Baseline Waste Load Allocations for the Municipal Permittees; and Caltrans	0% of the baseline load calculated as a rolling 3-year annual average

1.11 MAL Monitoring

Stormwater sampling against MAL analytes shall be performed at the same time stormwater monitoring is performed for other purposes and with the same frequency – three times during the wet season. The table below identifies the MAL analytes and their numeric limitations.

Table XIV - Municipal Action Levels

Metals	Unit	Total
Cadmium	ug/l	2.52
Chromium	ug/l	20.2
Copper	ug/l	71.12
Lead	ug/l	102
Zinc	ug/l	641.3
Nickel	ug/l	27.43

Conventional Pollutants	Unit	MAL
Total Phosphorus	mg/l	0.80
Nitrate & Nitrite	mg/l	1.85
Kjedahl Nitrogen (TKN)	mg/l	4.59
COD	mg/l	247.5
TSS	mg/l	264.1
pH	-	6 -9

1.12 Action Level Monitoring

The tables below lists non-stormwater action level analytes for Dominguez Channel, Compton Creek, and Machado Lake. As mentioned, the City does not intend to conduct action level or any other non-stormwater monitoring at the outfall. Such monitoring is not authorized under the Clean Water Act and is contrary to State Board water quality orders. Because non-stormwater discharges are not subject to an iterative process an exceedance would place a Permittee in violation. Nevertheless, the City shall conduct non-stormwater monitoring to detect and eliminated illicit discharges and connections (see below Section 1.14).

Table XV – Action Levels (Non-Stormwater) for Dominguez Channel

Analyte	Units	Average Monthly	Daily Maximum
pH	Standard units	6.5-8.5[1]	
Total Coliform bacteria	#/100 ml	1000[2,3]	10,000[3,4]
Fecal Coliform Bacteria	#/100 ml	200[2]	400[4]
Enterococcus Bacteria	#/100 ml	35[2]	104[4]
Cyanide, Total Recoverable	ug/L	0.5	1
Copper, Total Recoverable	ug/L	2.9	5.8
Lead, Total Recoverable	ug/L	7	14
Mercury, Total Recoverable	ug/L	0.051	0.1
Selenium, Total Recoverable	ug/L	58	117

[1] Within the range of 6.5 to 8.5 at all times.
[2] Total coliform density shall not exceed a geometric mean of 1,000/100 ml. Fecal coliform density shall not exceed a geometric mean of 200/100 ml. Enterococcus density shall not exceed a geometric mean of 35/100 ml.
[3] In areas where shellfish may be harvested for human consumption, as determined by the Regional Water Board, the median total coliform density shall not exceed 70/100 ml and not more than 10 percent of the samples shall exceed 230/100 ml.
[4] Total coliform density in a single sample shall not exceed 10,000/100 ml. Fecal coliform density in a single sample shall not exceed 400/100 ml. Enterococcus density shall not exceed a geometric mean of 104/100 ml.

Table XVI – Action Levels (Non-Stormwater) for Los Angeles River

Analyte	Units	Average Monthly	Daily Maximum
pH	Standard units	6.5-8.5[1]	
Total Coliform bacteria	#/100 ml	1000[2,3]	10,000[3,4]
Fecal Coliform Bacteria	#/100 ml	200[2]	400[4]
Enterococcus Bacteria	#/100 ml	35[2]	104[4]
Chloride	mg/L	150	--
Nitrite Nitrogen. Total (as N)	mg/L	1.0 [6]	--
Sulfate	mg/L	350	--
Total Dissolved Solids	mg/L	1500	--
Turbidity	NTU	5 [6]	--
Aluminum, Total Recoverable	ug/L	1.0 [6]	--
Cyanide, Total Recoverable	ug/L	0.5	1
Copper, Total Recoverable	ug/L	2.9	5.8
Mercury, Total Recoverable	ug/L	0.051	0.1
Selenium, Total Recoverable	ug/L	58	117

1.13 Additional Monitoring Required for I-WMP Compliance

MRP section VI.C.2.a.i and ii requires additional outfall monitoring tasks for Permittees that opt for the WMP. They include pollutants that are currently not TMDLs but are nevertheless 303(d) listed (e.g., cyanide). Regional Board staff has suggested that other water quality standards be included that can found in the previous MS4 in attachment U of the Monitoring Program.

The purpose of this monitoring task is to identify non-TMDL pollutants are causing impairments to beneficial uses of receiving waters and to evaluate the effectiveness of BMPs implemented through the SWMP/WMP. They are also included to determine if non-TMDL pollutants are causing or contributing to exceedances of receiving water limitations. The City takes the position that the detection of an exceedance does not constitute a violation.

Any persistent exceedance of a TMDL or water quality standard monitored over the term of the Permit would not constitute a violation provided that (1) the SWMP/WMP is being implemented in a timely and complete manner; and (2) complies with the iterative process described in MS4 Permit section V.A.1-4.

Resulting data generated from WMP-related monitoring will be, along with TMDL monitoring, loaded into the water quality model. These pollutants will be added to the stormwater outfall sampling list. Non-TMDL consitutents present in table below included as part of the receiving water, storm water outfall-based and non-storm water outfall based monitoring.

Table XVII - WMP Monitoring for Non-TMDL Water Quality Standards

CONSTITUENTS	USEPA METHOD	MLs
CONVENTIONAL POLLUTANTS		**mg/L**
Oil and Grease	EPA 1664	5
Total Phenols	EPA 420.1	0.1
Cyanide	EPA 4500-CNC	0.005
pH	EPA 150.1	0 – 14
Temperature	NA	None
Dissolved Oxygen	NA	Sensitivity to 5 mg/L
BACTERIA		MPN/100ml
Total Coliform	SM 9221B	<20mpn/100ml
Fecal Coliform	SM 9222 B	<20mpn/100ml
Enterococcus	SM 9230 B	<20mpn/100ml
GENERAL		**mg/L**
Dissolved Phosphorus	SM 4500-PC	0.05
Total Phosphorus	SM 4500-PC	0.05
Turbidity	EPA 180.1	0.1NTU
Total Suspended Solids	EPA 160.2	2
Total Dissolved Solids	EPA 160.1	2
Volatile Suspended Solids	EPA 160.4	2
Total Organic Carbon	SM 5310 B	1
Total Petroleum Hydrocarbon	EPA 1664	5
Biochemical Oxygen Demand	SMOL-5210	2
Chemical Oxygen Demand	SM 5220D	20-900
Total Ammonia-Nitrogen	EPA 350.2	0.1
Total Kjeldahl Nitrogen	EPA 351.2	0.1
Nitrate-Nitrite	EPA 4110	0.1
Alkalinity	EPA 310.1	2

Specific Conductance	EPA 120.1	1umho/cm
Total Hardness	EPA 130.2	2
MBAS	SM 5540 C	<0.5
Chloride	EPA 300	2
Fluoride	EPA 300	0.1
Methyl tertiary butyl ether (MTBE)	EPA 4110	1
Perchlorate	EPA 314.0	4 ug/l
METALS(Dissolved & Total)		**µg/L**
Aluminum	EPA 200.8	100
Antimony	EPA 200.8	0.5
Arsenic	EPA 200.8	1
Beryllium	EPA 200.8	0.5
Cadmium	EPA 200.8	0.25
Chromium (total)	EPA 200.8	0.5
Chromium (Hexavalent)	EPA 200.8	5
Copper	EPA 200.8	0.5
Iron	EPA 200.8	100
Lead	EPA 200.8	0.5
Mercury	EPA 1631	0.5
Nickel	EPA 200.8	1
Selenium	EPA 200.8	1
Silver	EPA 200.8	0.25
Thallium	EPA 200.8	1
zinc	EPA 200.8	1
SEMIVOLATILE ORGANIC COMPOUNDS		
ACIDS		**µg/L**
2-Chlorophenol	EPA 625	2
4-Chloro-3-methylphenol	EPA 625	1
2,4-Dichlorophenol	EPA 625	1
2,4-Dimethylphenol	EPA 625	2
2,4-Dinitrophenol	EPA 625	5
2-Nitrophenol	EPA 625	10
4-Nitrophenol	EPA 625	5
Pentachlorophenol	EPA 625	2
Phenol	EPA 625	1
2,4,6-Trichlorophenol	EPA 625	10
BASE/NEUTRAL		**µg/L**
Acenaphthene	EPA 625	1
Acenaphthylene	EPA 625	2
Anthracene	EPA 625	2
Benzedine	EPA 625	5
1,2 Benzanthracene	EPA 625	5
Benzo(a)pyrene	EPA 625	2
Benzo(g,h,i)perylene	EPA 625	5
3,4 Benzoflouranthene	EPA 625	10
Bis(2-Chloroethoxy) methane	EPA 625	2
Bis(2-Chloroisoproply) ether	EPA 625	5
Bis(2-Chloroethyl) ether	EPA 625	2

Bis(2-Ethylhexl) phthalate	EPA 625	1
4-Bromophenyl Phenyl ether	EPA 625	5
Butyl benzyl phthalate	EPA 625	5
2-Chloroethyl vinyl ether	EPA 625	10
2-Chloronaphthalene	EPA 625	1
4-Chlorophenyl phenyl ether	EPA 625	10
Chrysene	EPA 625	5
Dibenzo(a,h)anthracene	EPA 625	5
1,3-Dichlorobenzene	EPA 625	0.1
1,4-Dichlorobenzene	EPA 625	1
1,2-Dichlorobenzene	EPA 625	1
3,3-Dichlorobenzidine	EPA 625	1
Diethyl phthalate	EPA 625	5
Dimethyl phthalate	EPA 625	2
di-n-Butyl phthalate	EPA 625	2
2,4-Dinitrotoluene	EPA 625	10
2,6-Dinitrotoluene	EPA 625	5
4,6 Dinitro-2-methylphenol	EPA 625	5
1,2-Diphenylhydrazine	EPA 625	5
di-n-Octyl phthalate	EPA 625	1
Fluoranthene	EPA 625	10
Fluorene	EPA 625	0.05
Hexachlorobenzene	EPA 625	0.1
Hexachlorobutadiene	EPA 625	1
Hexachloro-cyclopentadiene	EPA 625	5
Hexachloroethane	EPA 625	1
Indeno(1,2,3-cd)pyrene	EPA 625	0.05
Isophorone	EPA 625	1
Naphthalene	EPA 625	1
Nitrobenzene	EPA 625	0.2
N-Nitroso-dimethyl amine	EPA 625	5
N-Nitroso-diphenyl amine	EPA 625	1
N-Nitroso-di-n-propyl amine	EPA 625	5
Phenanthrene	EPA 625	0.05
Pyrene	EPA 625	0.05
1,2,4-Trichlorobenzene	EPA 625	1
CHLORINATED PESTICIDES		**µg/L**
Aldrin	EPA 608	0.005
alpha-BHC	EPA 608	0.01
beta-BHC	EPA 608	0.005
delta-BHC	EPA 608	0.005
gamma-BHC (lindane)	EPA 608	0.02
alpha-chlordane	EPA 8270	0.1
gamma-chlordane	EPA 8270	0.1
4,4'-DDD	EPA 8270	0.05
4,4'-DDE	EPA 8270	0.05
4,4'-DDT	EPA 8270	0.01
Dieldrin	EPA 608	0.01

alpha-Endosulfan	EPA 608	0.02
beta-Endosulfan	EPA 608	0.01
Endosulfan sulfate	EPA 608	0.05
Endrin	EPA 608	0.01
Endrin aldehyde	EPA 608	0.01
Heptachlor	EPA 608	0.01
Heptachlor epoxide	EPA 608	0.01
Toxaphene	EPA 608	0.5
POLYCHLORINATED BIPHENYLS		**µg/L**
Aroclor-1016	EPA 608	0.5
Aroclor-1221	EPA 608	0.5
Aroclor-1232	EPA 608	0.5
Aroclor-1242	EPA 608	0.5
Aroclor-1248	EPA 608	0.5
Aroclor-1254	EPA 608	0.5
Aroclor-1260	EPA 608	0.5
Congeners3	EPA 8270C	NA
ORGANOPHOSPHATE PESTICIDES		**µg/L**
Atrazine	EPA 8141A/B	2
Chlorpyrifos	EPA 8141A/B	0.05
Cyanazine	EPA 8141A/B	2
Diazinon	EPA 8141A/B	0.01
Malathion	EPA 8141A/B	1
Prometryn	EPA 8141A/B	2
Simazine	EPA 8141A/B	2
HERBICIDES		**µg/L**
2,4-D	EPA 8151A	10
Glyphosate	EPA 8151A	5
2,4,5-TP-SILVEX	EPA 8151A	0.5
SOLIDS		**mg/L**
Total Suspended Solids (TSS)	SM 2540D	2
Suspended Sediment Concentration (SSC)	ASTM D3977-97C	NA
Volatile Suspended Solids	EPA 1684	2

1.14 Non-stormwater Monitoring for IC/ID

As mentioned above, the City proposes to perform non-stormwater monitoring to detect and eliminate illicit connections and discharges in accordance with 40 CFR 122.26(d)(1)(D). Monitoring will consist of dry weather visual observations at outfalls or field screening points, which shall be conducted monthly during the dry season (May 1 to September 30) -- see **Appendix A-1** for field screening locations. If flow is detected, grab samples

are to be taken within a 24 hour period and measured against fecal coliform, fecal streptococcus, surfactants (MBAS), residual chlorine, fluorides, and potassium. Other constituents may be added later based on USEPA's ICID-DE guidance manual.

1.15 Reporting Requirements

The City shall comply with all reporting requirements specified in the MRP. The City cannot begin to report monitoring results until: (1) the I-WMP and MRP have been approved by the Regional Board, (expected to happen 4 months after the June 28th WMP submittal date); and (2) one round of monitoring has been conducted during October 2014-April 2015 wet season. Results will be reported to the Regional Board on or before December of 2015. By this time, it is expected that the County of Los Angeles will have developed a standardized annual report form that will include reporting criteria for the MS4 Permit, TMDLs, MALs and certain water quality standards.

1.16 Monitoring Protocols

The MRP requires a variety of monitoring requirements that are governed by monitoring protocols established by USEPA, which are summarized below.

I. *Receiving Monitoring Protocol*

Minimum required receiving water monitoring frequencies are defined in section VI.C of Attachment E in the MS4 Permit. Wet weather is defined as when the flow with the receiving water is at least 20% greater that the base flow. In an effort to simplify the wet weather definition the City will utilize the definition in Attachment A of the MS4 Permit, which defines the wet season as the time period between October 1st and April 15th

unless a storm event that is qualified to be targeted as the first event of the year is forecasted within a reasonable amount of time prior to October 1st. Wet weather monitoring will occur at least three times per year for all applicable parameters with the exception for aquatic toxicity. Aquatic toxicity monitoring will be conducted at a minimum of twice per year. The first wet weather event with a predicted rainfall of .25 inches with a 70% probability 24 hours prior to rain fall will be targeted for monitoring. At a minimum two additional rainfall events with a minimum separation of three dry days (less than .1 inch of rain per day) between monitoring will be monitored to meet the minimum requirement of three storm events per year. Receiving water monitoring shall be coordinated to start as soon as possible following storm water outfall monitoring to better reflect the potential impact from MS4 discharges.

Dry weather monitoring requirements are defined in section VI.D of Attachment E in the MS4 Permit. Monitoring shall take place a minimum of two times per year for all parameters, or more if required by a TMDL monitoring plan. At least one of the monitoring events shall take place during the historically driest month of the year. Typically the driest month of the year is in August, which will be utilized for the time period of which at least one of the monitoring events occurs.

II. *Non-storm water outfall based sampling Protocol*

Dry weather samples will be collected on days there has be no measurable precipitation within the last three days. Grab samples will be taken for constituents that are required to be collected by grab sampling. If the City cannot install an automated sampler, grab samples will be collected. Flow will be estimated for storm water outfall monitoring sites based on drainage area, impervious cover, and precipitation data.

III. *Outfall Based sampling protocol*

For each field screening point, sample shall be collected of storm water discharge from three storm events occurring at least one month apart in accordance with the requirements indicated below:

- For storm water discharges, all samples shall be collected from the discharge resulting flow with the receiving water is at least 20% greater that the base flow. For Dominguez channel wet weather define as any day when the maximum daily flow measured at a location within the Dominguez Channel is equal to or greater than 62.7 cfs, a flow-weighted composite shall be taken in each hour of discharge for the first 24 hours of the discharge or for the entire discharge if the storm event is less than 24 hours. The flow-weighted composite sample for a storm water discharge may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the first 24 hours of the discharge or for the entire discharge if the storm event is less than 24 hours., with each aliquot being separated by a minimum period of twenty minutes. In addition City will targeted first storm event of the storm year with a predicted rainfall of at least 0.25 inch at a 70% probability of rainfall at least 24 hours prior to the event start time. Another two wet weather monitoring will happen when predicted rain is equal or more than 0.1 inches and minimum 3 consecutive days of dry weather.

- Sampling of storm water from field screening points will take place during 24 hours of an event or before the event ends if less than 24 hours. A minimum of three grab samples separated by 15 minutes of each hour for a 24 hour event or for the duration of the storm, if less

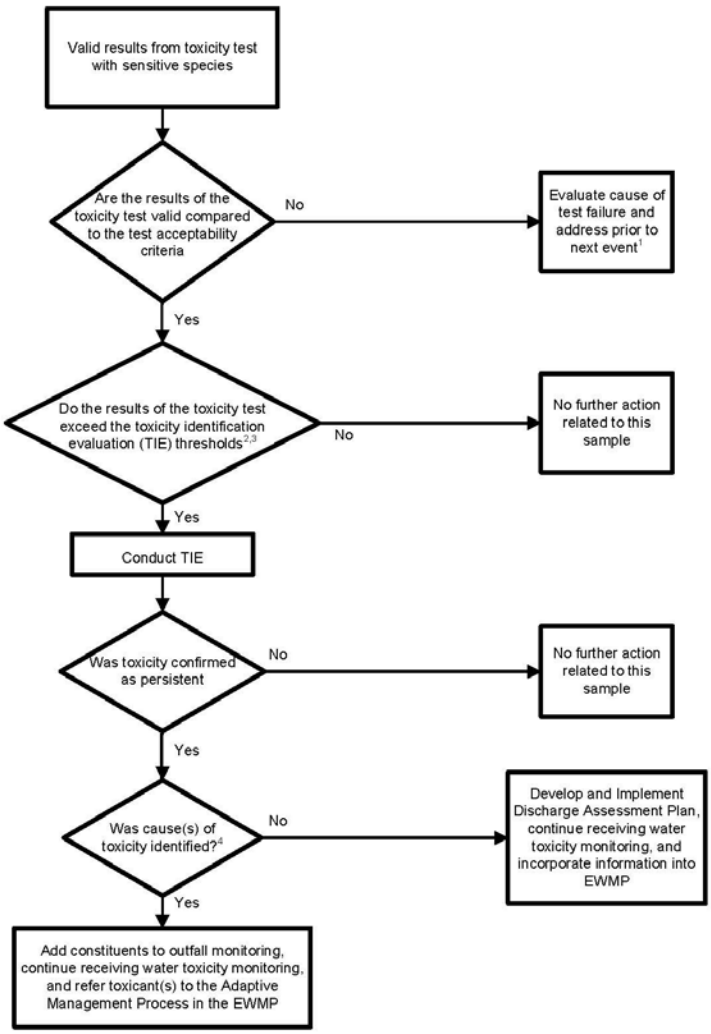
than 24 hours, will be taken to create a flow weighted composite sample of the discharge from an outfall. Grab samples may be utilize for specific pollutants such as bacteria, oil & grease, volatile organics and cyanides. For all storm water permit applicants taking flow-weighted composites, quantitative data must be reported for all pollutants specified in §122.26 except pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform, and fecal streptococcus.

- A storm event that is greater than 0.1 inch and at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. For all applicants, a flow-weighted composite shall be taken for either the entire discharge or for the first three hours of the discharge. The flow-weighted composite sample for a storm water discharge may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge or for the first three hours of the discharge, with each aliquot being separated by a minimum period of fifteen minutes. For a flow-weighted composite sample, only one analysis of the composite of aliquots is required. For all storm water permit applicants taking flow-weighted composites, quantitative data must be reported for all pollutants specified in §122.26 except pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform, and fecal streptococcus.

IV. *Toxicity Monitoring/Testing Protocol*

The approach to conducting aquatic toxicity monitoring is presented in Figure C-1, which describes a general evaluation process for each sample collected as part of routine sampling conducted twice

per year in wet weather and once per year in dry weather. Monitoring begins in the receiving water and the information gained is used to identify constituents for monitoring at outfalls to support the identification of pollutants.



Footnotes

1. Test failure includes pathogen or epibont interference, which should be addressed prior to the next toxicity sampling event. Additionally, lab control organisms may fail to meet test standards. As a result of test failure, toxicity samples will be collected during the next wet weather event, or as soon as possible following notification of test failure for dry event samples.
2. For freshwater, the TIE threshold is equal to or greater than 50% (≥50%) mortality in an acute (wet weather) or chronic (dry weather) test. If a ≥50% effect in a sub-lethal endpoint for chronic test is observed during dry weather, a follow up sample will be collected within two weeks of the completion of the initial sample collection. If the follow up sample exhibits a ≥50% effect, a TIE will be initiated.
3. For marine waters and estuarine waters, the TIE threshold is the percent effect value ≥50%. If a ≥50% or greater effect is observed during dry weather a follow up sample will be collected within two weeks of the initial sample collection and if the follow up sample exhibits a ≥50% effect, a TIE will be initiated.
4. The goal of conducting Phase I TIEs is to identify the cause of toxicity so that outfall monitoring can incorporate the toxicant(s) into the list of constituents monitored during outfall monitoring. Thus, if specific toxicant(s) or the analytical class of toxicants (i.e., metals that are analyzed via EPA Method 200.8) are identified, sufficient information is available to inform the addition of pollutants to the list of pollutants monitored during outfall monitoring.

1.17 Implementation Schedule (Milestones)

The table below provides a schedule for implementing MRP/CIMP tasks.

Table XVIII – Implementation Schedule

Task	Deadline Date
• Submit WMP, MRP, and CIMP to Regional Board	No later than June 28, 2014
• Using GIS mapping, provide land use overlay of City's storm drain system	No later than June 28, 2014
• Using GIS mapping, show City's storm drain system including catch basins and connections to receiving waters	No later than June 28, 2014
• Using GIS mapping, identify watershed and sub-watershed based on Los Angeles County's HUC 12 equivalent boundaries	No later than June 28, 2014
• Using GIS mapping, identify: stormwater outfalls and field screening points; mass emission and other in-stream monitoring points/stations; and ambient monitoring locations established by the Regional Board's Surface Water Ambient Monitoring Program (SWAMP); and locations established by the Council for Watershed Health.	No later than June 28, 2014
• Conduct outfall monitoring for stormwater discharges for TMDLs, other water quality standards, MALs, and toxicity three times beginning during 2015-2016 wet season and annually thereafter.	Beginning no later than October of 2015
• During the dry season, conduct monthly non-stormwater visual observations and grab sampling if flow is detected.	No later than May 1, 2015
• If no data exists the City shall contract for the CWH to conduct ambient monitoring once during the term of the Permit for Dominguez Channel (costs to be shared with the cities of Carson and Gardena)	No later than June 28, 2015
• Review available ambient monitoring data and studies to assess the health of the Dominguez at both reaches (above and below Vermont Avenue)	No later than June 28, 2014
• Submit annual monitoring reports to the Regional Board of any available TMDL or other water quality standards data generated through outfall monitoring.	Beginning no later than December of 2014
• Submit new development/redevelopment track form.	No later than one month following the Regional Board's approval of the CIMP

END SECTION ONE MRP-IMP

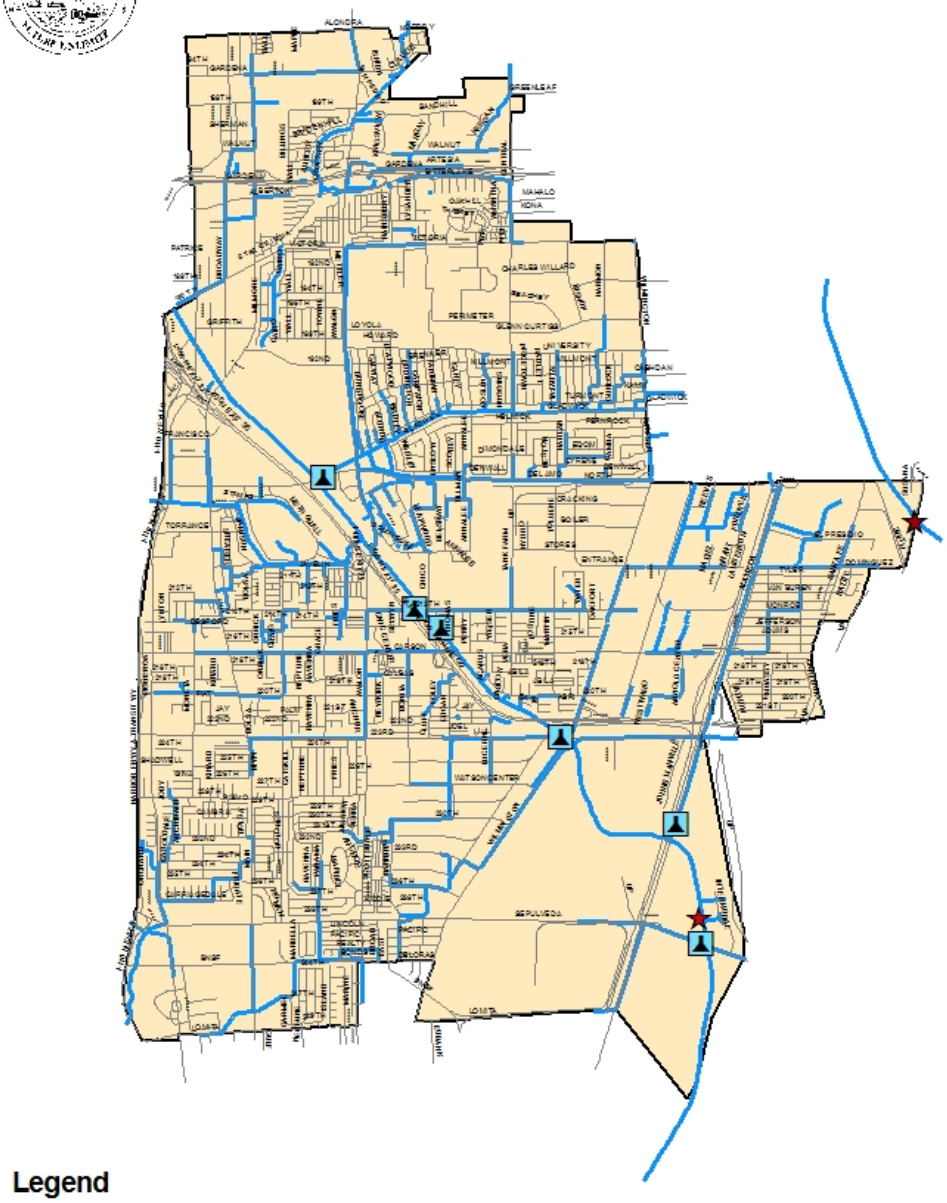
Appendix A

Maps

Appendix A-1

Outfall and Receiving Water Location Map

City of Carson Field Screening Points



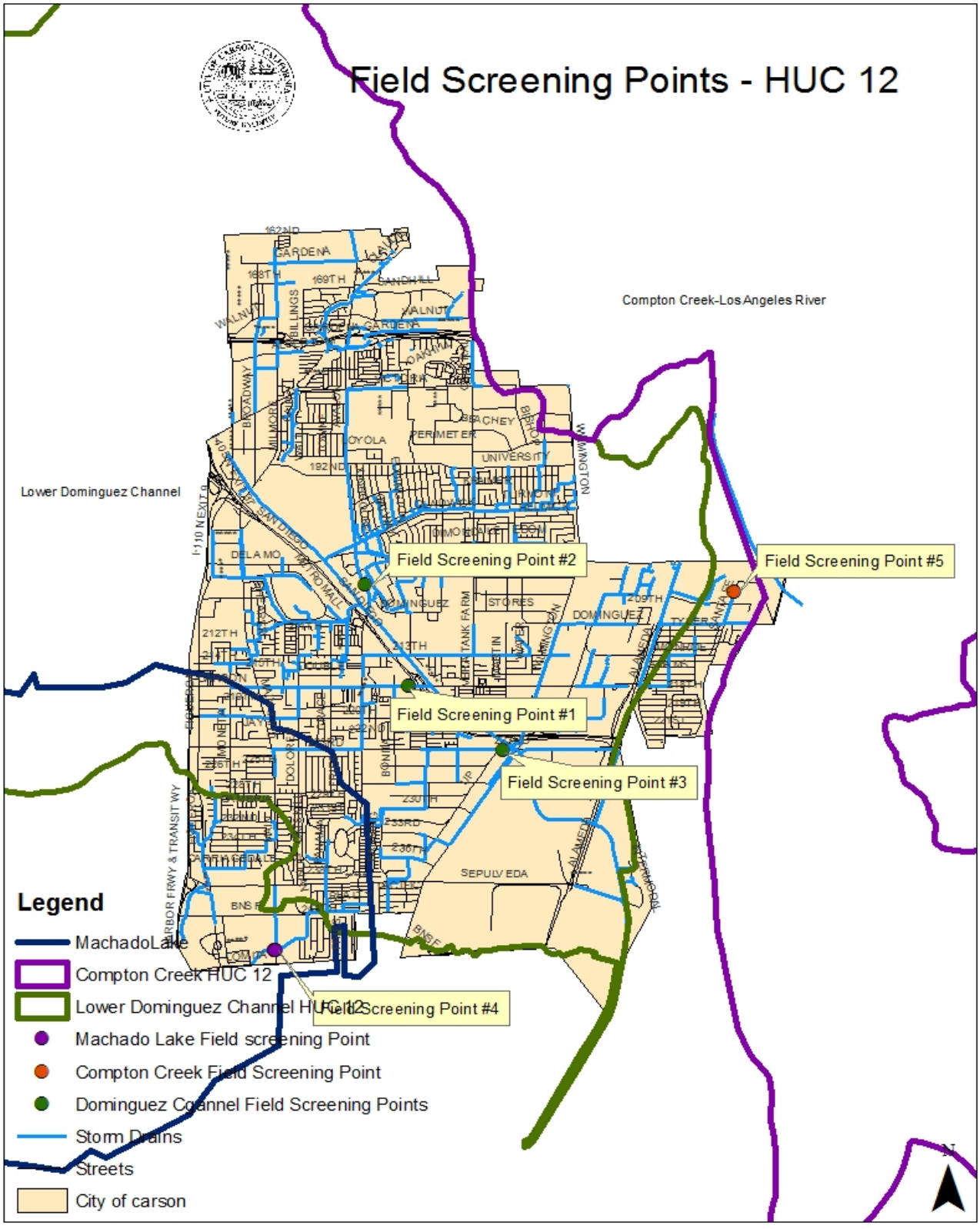
Legend

- Receiving Water Monitoring Location
- Outfall Locations
- Streets
- Storm Drains
- City of Carson

N

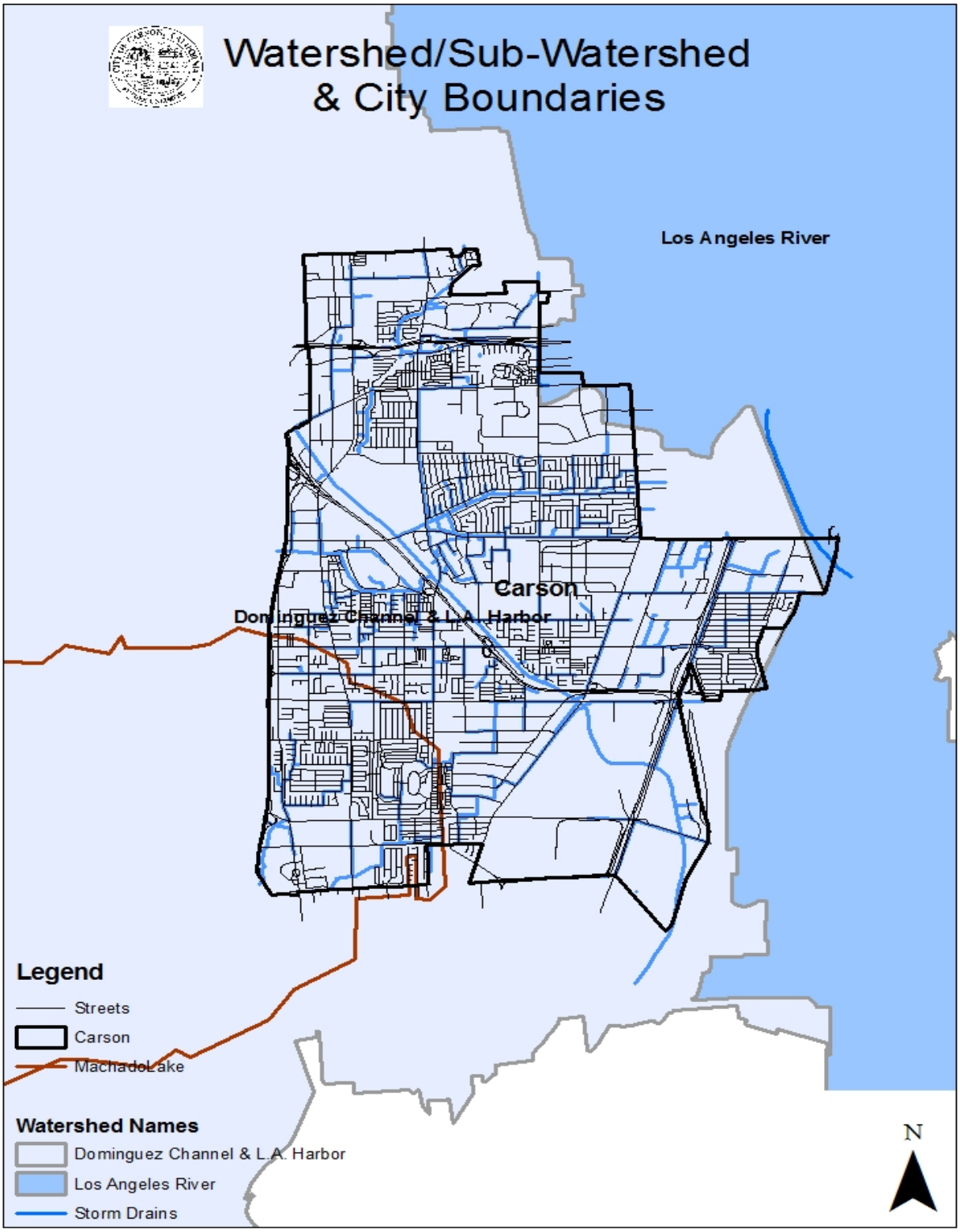
Appendix A-2

Field Screening Point Location with HUC 12 Boundaries


Field Screening Points - HUC 12
Compton Creek-Los Angeles River
Lower Dominguez Channel
Field Screening Point #2
Field Screening Point #5
Field Screening Point #1
Field Screening Point #3
Field Screening Point #4
Legend
MachadoLake
Compton Creek HUC 12
Lower Dominguez Channel HUC 12
Machado Lake Field screening Point
Compton Creek Field Screening Point
Dominguez Channel Field Screening Points
Storm Drains
Streets
City of carson
N

Appendix A-3

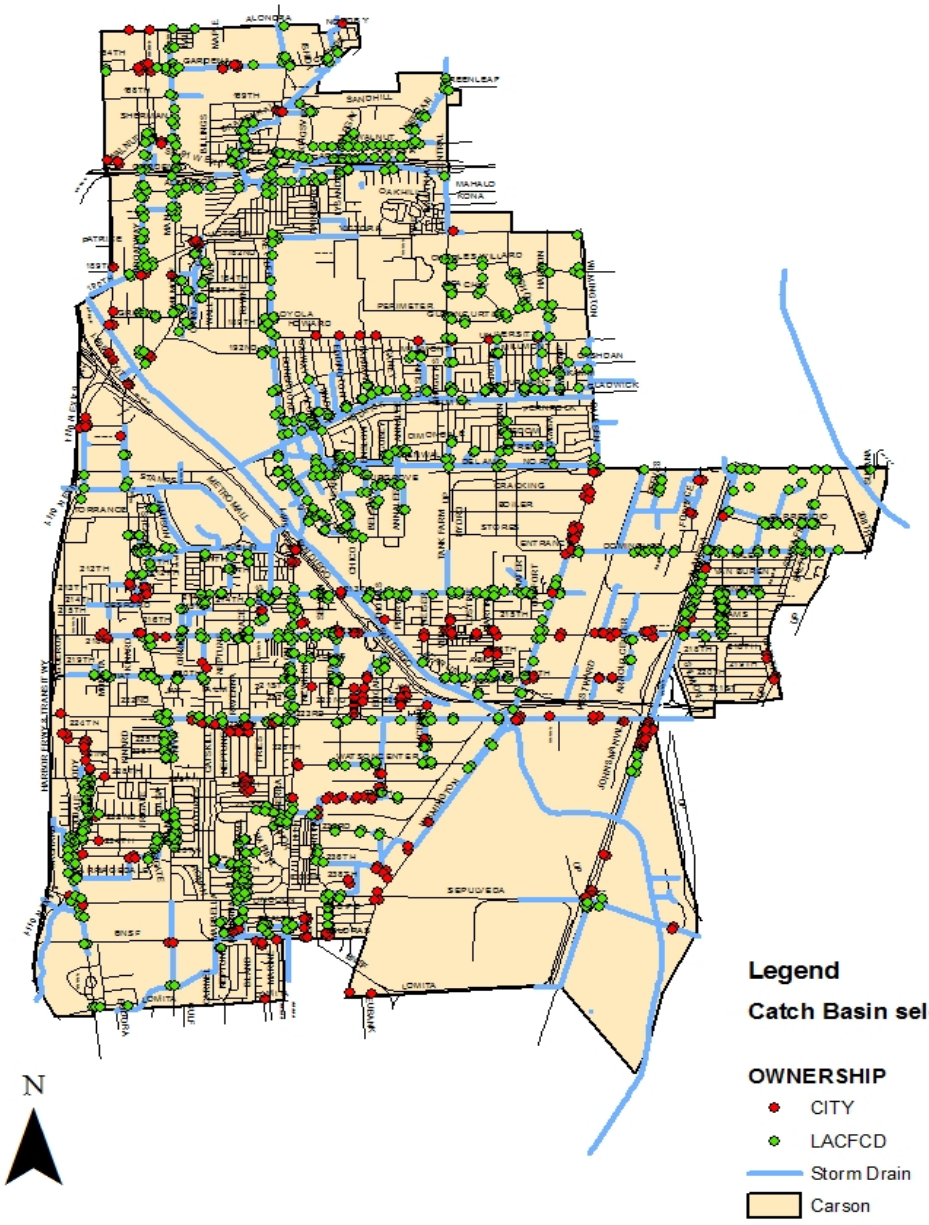
Watershed/Sub-watershed & City Boundary Map


Watershed/Sub-Watershed
& City Boundaries
Los Angeles River
Carson
Dominguez Channel & L.A. Harbor
Legend
Streets
Carson
MachadoLake
Watershed Names
Dominguez Channel & L.A. Harbor
Los Angeles River
Storm Drains
N

Appendix A-4

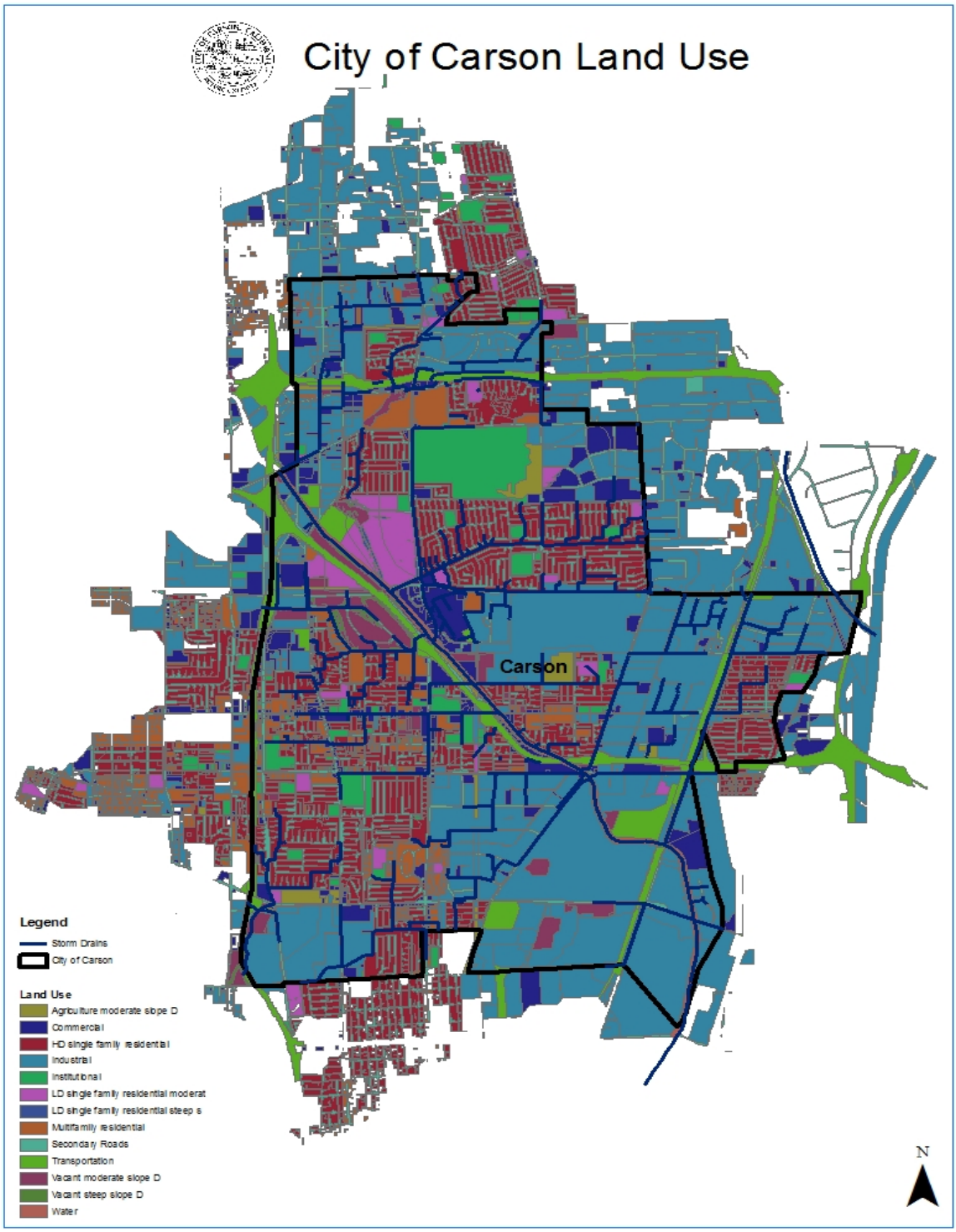
Storm Drain/Catch Basin Map

City of Carson Catch Basins



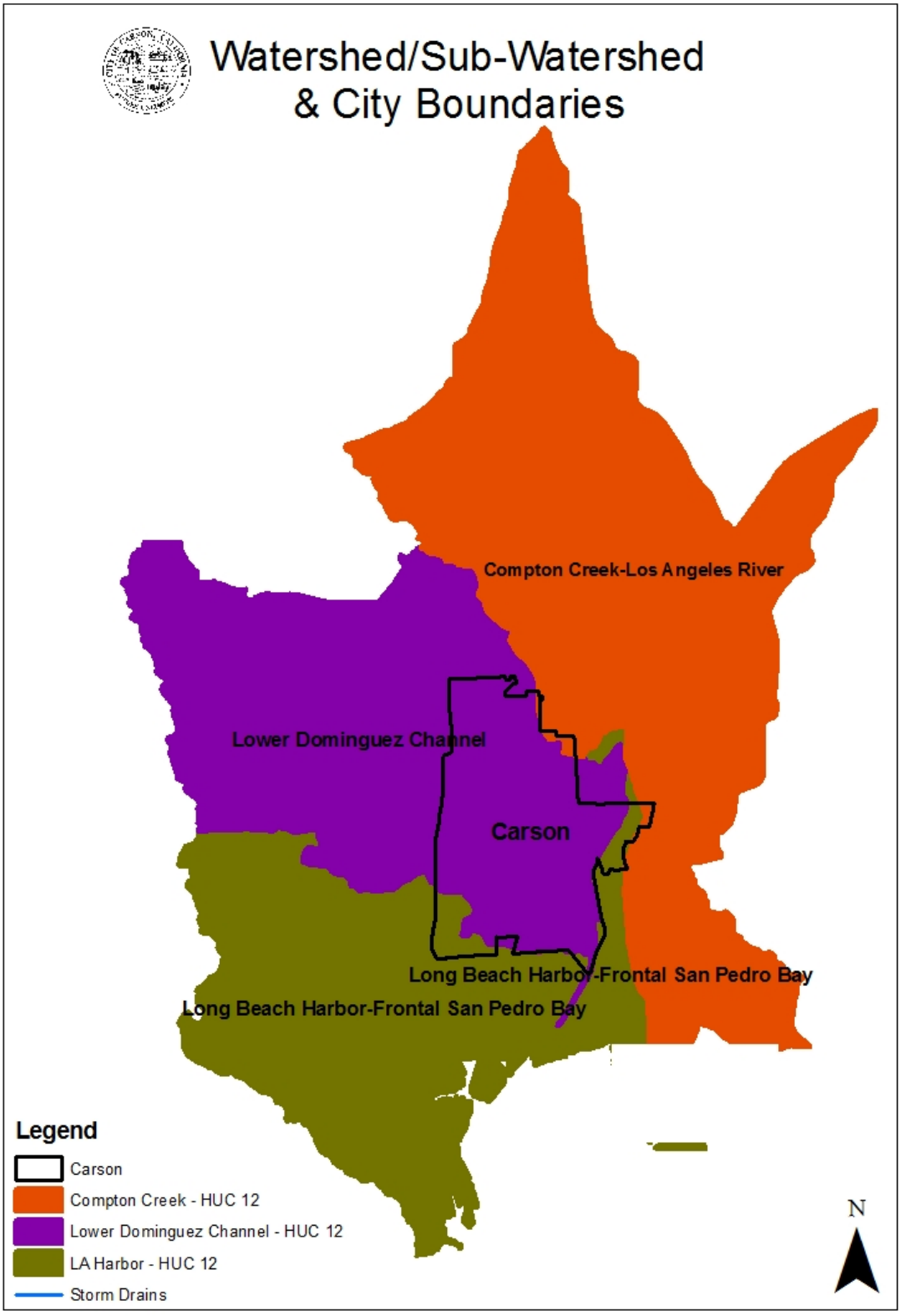
Appendix A-5

City Land Use Map


City of Carson Land Use
Carson
Legend
Storm Drains
City of Carson
Land Use
Agriculture moderate slope D
Commercial
HD single family residential
Industrial
Institutional
LD single family residential moderat
LD single family residential steep s
Multifamily residential
Secondary Roads
Transportation
Vacant moderate slope D
Vacant steep slope D
Water
N

Appendix A-3

HUC - 12
& City Boundary Map


Watershed/Sub-Watershed
& City Boundaries
Compton Creek-Los Angeles River
Lower Dominguez Channel
Carson
Long Beach Harbor-Frontal San Pedro Bay
Long Beach Harbor-Frontal San Pedro Bay
Legend
Carson
Compton Creek - HUC 12
Lower Dominguez Channel - HUC 12
LA Harbor - HUC 12
Storm Drains
N

Appendix B

2010 303(d) List for Dominguez Channel, Machado Lake, and Los Angeles River (Compton Creek)

Appendix B

Table XIX – 303(d) List – Dominguez Channel

2010 303 (d) List				
Water Body	**Parameter**	**TMDL Status Date**	**Source**	**Pollutant Category**
Dominguez Channel (below Vermont Avenue)	Ammonia	2019	Nonpoint/Point Source	TMDL Require List
	BMB	2019	Nonpoint/Point Source	TMDL Require List
	Benzo Pyrene (PAHs)	2019	Source Unknown	TMDL Require List
	Benzo Anthracene (PAHs)	2019	Source Unknown	TMDL Require List
	Chlordane (tissue)	2019	Source Unknown	TMDL Require List
	Chrysene (C1-C4)	2019	Source Unknown	TMDL Require List
	Coliform Bacteria	2007	Nonpoint/Point Source	TMDL Require List
	DDT (tissue & Sediment)	2019	Nonpoint/Point Source	TMDL Require List
	Dieldrin (tissue)	2019	Nonpoint/Point Source	TMDL Require List
	Lead (tissue)	2019	Nonpoint/Point Source	TMDL Require List
	PCBs	2019	Source Unknown	TMDL Require List
	Phenanthrene	2019	Source Unknown	TMDL Require List
	Pyrene	2019	Source Unknown	TMDL Require List
	Zinc (sediment)	2019	Nonpoint/Point Source	TMDL Require List
	Sediment Toxicity	2021	Nonpoint Source	TMDL Require List
Dominguez Channel (Above Vermont Avenue)	Ammonia	2019	Point Source	TMDL Require List
	Copper	2019	Nonpoint/Point Source	TMDL Require List
	Indicator Bacteria	2007	Nonpoint/Point Source	TMDL Require List

	Lead	2019	Nonpoint/Point Source	TMDL Require List
	Toxicity	2021	Nonpoint/Point Source	TMDL Require List
	Zinc	2019	Nonpoint/Point Source	TMDL Require List
	Diazinon	2019	Source Unknown	TMDL Require List

Table XX – 303(d) List – Machado Lake

2010 303 (d) List				
Water Body	**Parameter**	**TMDL Status Date**	**Source**	**Pollutant Category**
Machado Lake	Algae	2009	Urban Runoff	Being address by USEPA approval TMDL
	Ammonia	2019	Urban Runoff	Being address by USEPA approval TMDL
	Chem A(tissue)	2019	Non-Point Source	TMDL Require List
	Chlordane (tissue)	2019	Non-Point Source	TMDL Require List
	DDT (tissue)	2019	Non-Point Source	TMDL Require List
	Dieldrin (tissue)	2019	Non-Point Source	TMDL Require List
	Eutrophic	2009	Urban Runoff	Being address by USEPA approval TMDL
	PCBs (tissue)	2019	Non-Point Source	TMDL Require List
	Trash	2008	Urban Runoff	Being address by USEPA approval TMDL

Table XXI – 303(d) List – Los Angeles River Compton Creek

2010 303 (d) List				
Water Body	**Parameter**	**TMDL Status Date**	**Source**	**Pollutant Category**
Los Angeles River - Compton Creek	Coliform Bacteria	2009	Nonpoint/Point Source	TMDL Require List
	Trash	2005	Nonpoint/Surface Runoff	Being address by USEPA approval TMDL

	Copper, Dissolved	2005	Nonpoint/Point Source	Being address by USEPA approval TMDL
	Lead, Dissolved	2005	Nonpoint/Point Source	Being address by USEPA approval TMDL
	pH	2004	Nonpoint/Point Source	Being address by USEPA approval TMDL
	Benthic Macroinvertabrate Bioassessments	2021	Source Unknown	TMDL Require List

Appendix C

Total Maximum Daily Loads

Appendix C-1

Dominguez Channel TMDLs

Appendix C-2

Machado Lake TMDLs

Appendix C-3

Los Angeles River (Reach 1) and Compton Creek TMDLs